

Docket Number 4481-022Serial Number 09/598,890Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-16 (canceled)

17. (*currently amended*) A supply element for a laboratory microchip with a microfluid structure, the supply element comprising:

at least one substance-containing supplier including a substance, said at least one substance supplier having a substance seal for maintaining the substance therein in the particular supplier, the substance supplier and seal therefor having a size, position, material and shape for causing the seal thereof to be opened to the microchip in response to the supply element and the microchip being joined together and for enabling said substance to be transferred from said at least one substance supplier to a substance supplier disposed within the microchip, the substance supplier in the supply element being different from the substance supplier in the microchip.

18. (previously presented) The supply element of claim 17, wherein said seal of said substance supplier of the supply element comprises a chemically resistant substance.

19. (previously presented) The supply element of claim 17, wherein said seal of said substance supplier of the supply element comprises a wax.

20. (previously presented) The supply element of claim 17, wherein said substance supplier of the supply element comprises at least one end sealed by a membrane that is flush with a side surface of the supply element.

21. (previously presented) The supply element of claim 20, wherein said membrane

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comprises a chemically resistant material.

22. (previously presented) The supply element of claim 20, wherein said membrane comprises one of a metal or gas permeable polymer.

23. (previously presented) The supply element of claim 17, wherein said substance of said substance supplier of the supply element comprises at least one substance sample.

24. (previously presented) The supply element of claim 17, wherein said substance of said substance supplier of the supply element comprises at least one substance reagent.

25. (previously presented) The supply element of claim 17, wherein said supply element includes a plurality of said substance containing suppliers, the substance of one of said plural suppliers of the supply element including an analyte, the substance of another of the said plural substance suppliers of the supply element including a reagent for the analyte said analyte supplier having an analyte seal for maintaining the analyte therein in the particular supplier, the analyte supplier and seal therefor having a size, position, material and shape for causing the seal thereof to be opened to the microchip in response to the supply element and the microchip being joined together and for causing said analyte to be transferred from said at least one analyte supplier to an analyte supplier disposed within the microchip; said reagent supplier having a reagent seal for maintaining the reagent therein in the particular supplier, the reagent supplier and seal therefor having a size, position, material and shape for causing the seal thereof to be opened to the microchip in response to the supply element and the microchip being joined together and for causing said reagent to be transferred from said at least one reagent supplier to a reagent supplier disposed within the microchip.

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26. (previously presented) The supply element of claim 17, further comprising a potential supplier to transfer a potential to the microchip, said potential supplier of the supply element being arranged to be coupled to a corresponding potential supplier disposed within the microchip.

27. (*currently amended*) The supply element of claim 17, ~~further comprising in combination with an attachment arrangement to releasably attach the supply element to the supply equipment a holder for the supply element~~, wherein said arrangement comprises a bayonet lock.

28. (*currently amended*) A supply element for a laboratory microchip with a microfluid structure for at least one of chemical, physical, or biological processing, the supply element comprising:

at least one substance-containing substance supplier adapted to contain a substance, said at least one substance supplier having a seal arranged to be opened to the microchip in response to the supply element and the microchip being joined together to enable said substance to be transferred from said at least one substance supplier to a substance supplier disposed within the microchip, the supply element further comprising:

an attachment arrangement to releasably attach the supply element to the ~~supply equipment a holder for the supply element~~, said attachment arrangement comprising a bayonet lock.

29. (*currently amended*) The supply element of claim 17, further comprising a first coding arrangement to identify the supply element to a second corresponding coding arrangement for ~~a holder of the supply element equipment~~.

30. (*currently amended*) The supply element of claim 17, ~~further comprising in~~

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combination with first and second assemblies, said first assembly being arranged for carrying the microchip, said second assembly including a module for carrying (1) said supply element for said at least one substance, and (2) a holder for the supply equipment connected to the at least one substance for supplying the at least one substance supplier of the supply element, from the substance supplier to the substance supplier in the microchip, said module being releasably connectable to said first assembly.

31. (previously presented) The supply element of claim 17, wherein said seal of said at least one substance supplier of the supply element is adapted to be pierced by an end of a linkage between the supplier of the supply element and said supplier of the microchip to enable said substance to be transferred from said at least one first supplier of the supply element to the supplier of the microchip via the linkage.

32. (canceled)

33. (previously presented) The method of claim 57, wherein opening said seal of said supplier of the supply element comprises opening a seal comprising a chemically resistant substance.

34. (previously presented) The method of claim 57, wherein opening said seal of said supplier of the supply element comprises opening a seal comprising a wax.

35. (previously presented) The method of claim 57, further in combination with sealing at least one end of the supplier of the supply element with a membrane that is flush with a side surface of the supply element.

36. (previously presented) The method of claim 57, wherein sealing at least one end of the supplier of the supply element with a membrane comprises sealing with a membrane comprising a chemically resistant material.

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37. (previously presented) The method of claim 35, wherein sealing at least one end of the supplier of the supply element with a membrane comprises sealing with a membrane comprising one of a metal or a gas-permeable polymer.

38. (previously presented) The method of claim 57, further in combination with sealing an analyte as the substance in the supplier of the supply element.

39. (previously presented) The method of claim 57, further in combination with sealing a reagent as the substance in the supplier of the supply element.

40. (previously presented) The method of claim 57, wherein the supply element includes a plurality of the sealed substance sources, one of the plurality of sealed sources being a reagent source, another of the plurality of the sealed sources being an analyte source, the method further comprising supplying the reagent and analyte to the microfluid structure by breaking the seals of the reagent and analyte sources.

41. (previously presented) The method of claim 57, further comprising coupling a potential supplier disposed within the supply element to a corresponding potential supplier of the microchip and transferring a potential from the potential supplier of the supply element to the potential supplier of the microchip.

42. (*currently amended*) The method of claim 57, further comprising releasably attaching the supply element to supply equipment a holder for the supply element.

43. (*currently amended*) A method of operating a supply element for a laboratory microchip with a substance source, a microfluid structure connected to the microchip substance source, the method being practiced with a supply element including a sealed substance source, the method comprising:

opening a seal in said substance source of the supply element in response to the

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supply element and the microchip being joined together;

while the seal is open transferring the substance from said substance source of the supply element to the supplier disposed in the microchip;

moving the substance from the supplier disposed in the microchip to the microfluid structure by applying a potential to the microchip; and

releasably attaching the supply element to a holder for the supply equipment element, wherein releasably attaching the supply element to the holder for the supply equipment element comprises releasably attaching with a bayonet lock.

44. (previously presented) The method of claim 57, further comprising identifying the supply element to a second corresponding coding arrangement of supply equipment with a first coding arrangement.

45. (previously presented) The method of claim 57, further comprising connecting a module carrying said supply element with a first assembly and releasably connecting said module to a second assembly.

46. (previously presented) The method of claim 57, wherein the seal is opened by piercing said seal of said supply element and then transferring said substance to be transferred from said substance source of the supply element to the substance supplier of the microchip.

47. (previously presented) A combination comprising: a supply element and a laboratory microchip, comprising the microchip having disposed therein

(a) a microfluid structure

(b) a substance supplier adapted to supply substance to other portions of the microchip;

and

(c) a potential supplying arrangement adapted to supply a potential to the microchip for

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moving substances along paths corresponding to the microfluid structure;
the supply element including a source for supplying a substance to the supplier disposed in the microchip, said substance supply source of the supply element having a seal confining the substance of the source, the seal being arranged to be opened and supply the confined substance of the source to the substance supplier disposed in the microchip in response to the supply element and the microchip being joined together.

48. (previously presented) The combination of claim 47 wherein the supply element has disposed therein an additional supplier for transferring the potential to the potential supplying arrangement of the microchip.

49. (*currently amended*) The combination of claim 47, further comprising first and second assemblies, said first assembly including a module adapted to carry said supply element and a holder for the supply equipment element and said module of said first assembly being adapted to be releasably connected to said second assembly.

50. (previously presented) The combination of claim 47, wherein said seal of said source of the supply element is adapted to be pierced by an end of said supplier of the microchip to enable said substance to be transferred from said substance source of the supply element to the supplier of the microchip.

51. (previously presented) A method of operating a supply element combined with a laboratory microchip, the laboratory microchip having a microfluid structure; the method comprising:

supplying substances to passages in the microchip from a substance supplier disposed within the microchip;

moving substances in the passages by supplying potentials to regions in the microchip;

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a substance in at least one substance-containing supplier being disposed within the supply element;

opening a seal in said at least one substance containing supplier disposed within the supply element to the microchip in response to the supply element and the microchip being joined together; and

while the seal is open transferring said substance from said supplier of the supply element to the substance supplier of the microchip.

52. (previously presented) The method of claim 51, wherein opening said seal in said substance supplier of the supply element comprises opening a seal comprising a chemically resistant substance.

53. (*currently amended*) The method of claim 51 in combination with the steps of, further comprising sealing at least one end of at least one substance supplier of the supply element, the sealing step being performed prior to the supplying, moving, opening and transferring steps, with a membrane that is flush with a side surface of the supply element.

54. (previously presented) The method of claim 53, wherein sealing at least one end of said at least one substance supplier of the supply element with a membrane comprises sealing with a membrane comprising a chemically resistant material.

55. (previously presented) The method of claim 53, wherein sealing at least one end of said at least one substance supplier of the supply element with a membrane comprises sealing with a membrane comprising one of a metal or a gas-permeable polymer.

56. (previously presented) The supply element of claim 17 in combination with a microchip having a substance supplier, the microchip substance supplier being adapted to be connected in flow relation with the substance supplier of the supply element in response to the

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seal being opened.

57. (previously presented) A method of operating a supply element for a laboratory microchip with a substance source, a microfluid structure connected to the microchip substance source, the method being practiced with a supply element including a sealed substance source, the method comprising:

opening a seal in said substance source of the supply element in response to the supply element and the microchip being joined together;

while the seal is open transferring the substance from said substance source of the supply element to the supplier disposed in the microchip; and

moving the substance from the supplier disposed in the microchip to the microfluid structure by applying a potential to the microchip.

58. (previously presented) The combination of claim 56 wherein said seal of substance supplier of the supply element comprises a chemically resistant substance.

59 (previously presented) The combination of claim 56 wherein said seal of said supplier of the supply element comprises a wax.

60. (previously presented) The combination of claim 56 wherein said supplier of the supply element comprises at least one end sealed by a membrane that is flush with a side surface of the supply element.

61. (previously presented) The combination of claim 60 wherein said membrane comprises a chemically resistant material.

62. (previously presented) The combination of claim 60 wherein said membrane comprises one of a metal or gas permeable polymer.